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FLOOD INSURANCE STUDY

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TOWN OF PLAIN DEALING, LOUISIANA
BOSSIER PARISH

OCTOBER 15, 1980

federal emergency management agency
federal insurance administration

COMMUNITY NUMBER - 220035

FEMI. 209:

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
1.1	Purpose of Study	1
1.2	Authority and Acknowledgments	1
1.3	Coordination	1
2.0	AREA STUDIED	2
2.1	Scope of Study	2
2.2	Community Description	2
2.3	Principal Flood Problems	4
2.4	Flood Protection Measures	4
3.0	ENGINEERING METHODS	4
3.1	Hydrologic Analyses	5
3.2	Hydraulic Analyses	6
4.0	FLOOD PLAIN MANAGEMENT APPLICATIONS	7
4.1	Flood Boundaries	7
4.2	Floodways	7
5.0	INSURANCE APPLICATION	11
5.1	Reach Determinations	11
5.2	Flood Hazard Factors	12
5.3	Flood Insurance Zones	12
5.4	Flood Insurance Rate Map Description	13

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TABLE OF CONTENTS - continued

		Page
6.0	OTHER STUDIES	13
7.0	LOCATION OF DATA	13
8.0	BIBLIOGRAPHY AND REFERENCES	13

FIGURES

Figure 1 -	Vicinity Map	3
Figure 2 -	Floodway Schematic	11

TABLES

Table 1 -	Summary of Discharges	6
Table 2 -	Floodway Data	9-10
Table 3 -	Flood Insurance Zone Data	14

EXHIBITS

Exhibit 1 -	Flood Profiles	
	Little Cypress Bayou	Panels 01P-03P
	West Fork of Little Cypress Bayou	Panels 04P-05P
	East Fork of Little Cypress Bayou	Panels 06P-08P
Exhibit 2 -	Flood Boundary and Floodway Map	

PUBLISHED SEPARATELY:

Flood Insurance Rate Map

FLOOD INSURANCE STUDY
TOWN OF PLAIN DEALING, LOUISIANA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Plain Dealing, Bossier Parish, Louisiana, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert the Town of Plain Dealing to the regular program of flood insurance by the Federal Insurance Administration (FIA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 24 CFR, 1910.1 (d). In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgments

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by Owen and White, Inc., for the Federal Insurance Administration, under Contract No. H-4701. This study was completed in September 1979.

1.3 Coordination

On March 14, 1978, a community meeting was held to discuss the nature and purpose of the Flood Insurance Study. Representatives of the Town of Plain Dealing, the FIA, the Shreveport Area Council of Governments, and Owen and White, Inc. (study contractor), were present to identify those streams which would be studied in detail.

Contact was made throughout the study with the Town of Plain Dealing, U.S. Army Corps of Engineers (COE), U.S. Department of Agriculture, Soil Conservation Service (SCS), Louisiana Office of Public Works and U.S. Geological Survey (USGS).

The study began in October 1978, with the placing of a legal notice in the Boosier Press, announcing the start and intentions of the study.

On May 29, 1980, the results of the study were reviewed at the final meeting attended by representatives of Owen and White, Inc., the FIA and community officials. The study was acceptable to the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Plain Dealing, Bossier Parish, Louisiana. The area of study is shown on the Vicinity Map (Figure 1).

The limits of the detailed study in Plain Dealing were determined by FIA with community and study contractor consultation at the meeting in March 1978.

The confluences of Little Cypress Bayou, and the East and West Forks of Little Cypress Bayou are located within the corporate limits of Plain Dealing. Flooding from these three streams was studied in detail.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction for the next five years, through August 1984.

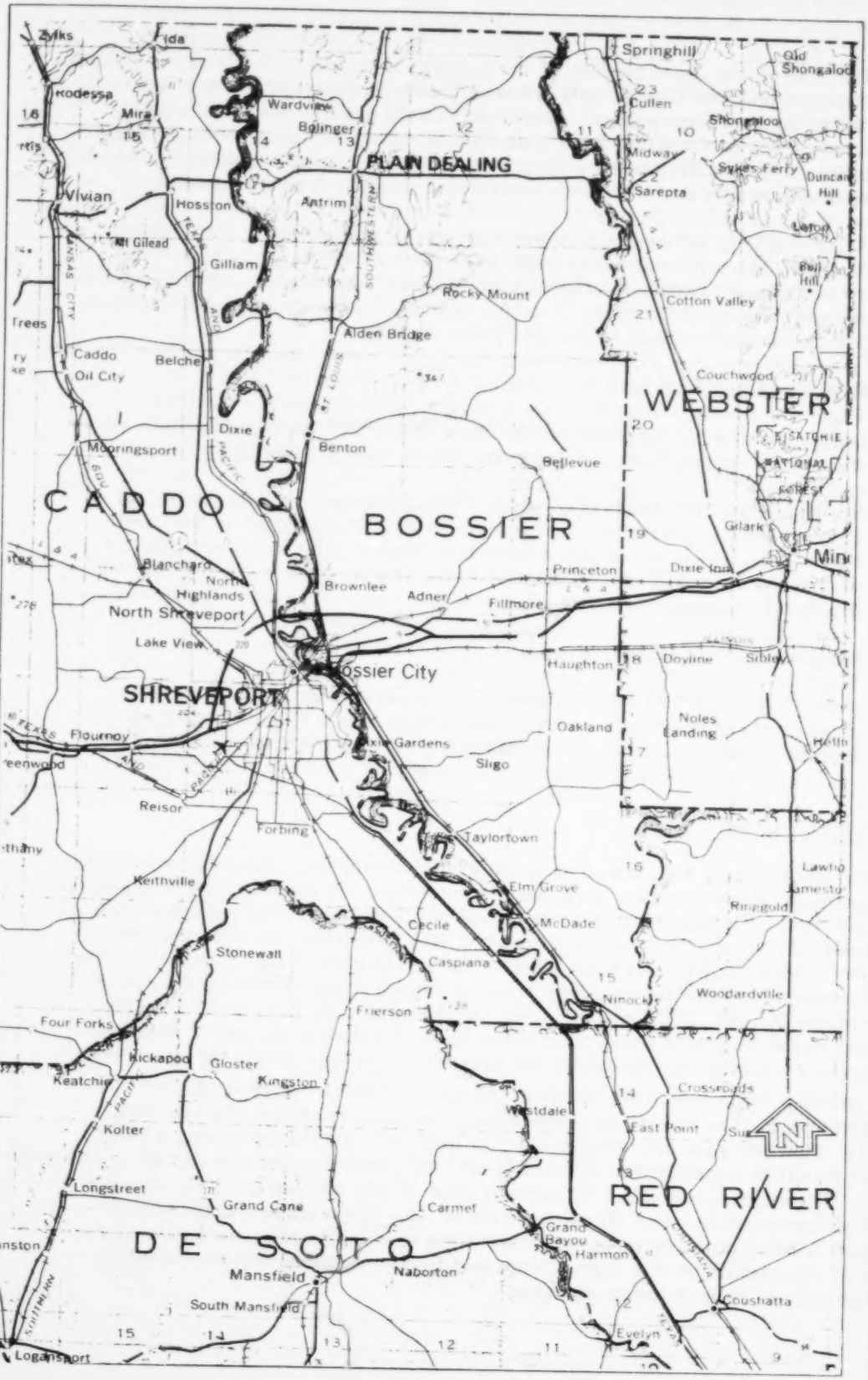
2.2 Community Description

The Town of Plain Dealing is located in northern Bossier Parish, approximately 30 miles north of Shreveport and 9 miles south of the Louisiana-Arkansas State Line. The 1970 census showed a population of 2116, an increase of more than 55 percent since 1960 (Reference 1).

Little Cypress Bayou flows through the Town of Plain Dealing. The East and West Forks of Little Cypress Bayou combine with the main branch within the town. At the southern corporate limits, the drainage area of Little Cypress Bayou is 7.5 square miles.

The economy of the area is primarily dependent upon forest products and agriculture.

The topography of the upper portion of the watershed range from moderately rolling to hilly, while flat topography is generally confined to the bottom lands. The entire span (2000 feet wide) between the East Fork of Little Cypress Bayou and the West Fork of Little Cypress Bayou in the heart of Plain Dealing is flat bottom land. Elevations range from 470 feet above National Geodetic Vertical Datum of 1929 (NGVD) in the headwaters to 250 feet NGVD at the southern corporate limits.



FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA
(BOSSIER PARISH)

VICINITY MAP

FIGURE 1

The soils in the upper portion of the watershed belong to the Shubuta-Ruston Association. The Ruston soils are well drained with sandy surface layers and sandy clay loam subsoil. The Shubuta soils are also well drained with a thin sandy surface that have a sandy clay subsoil which reduces permeability. The bottom lands are mostly formed in the poorly drained Mantachie soils whose silty surface layer comes from alluvium from the uplands.

The climate in northern Louisiana is primarily influenced by the Gulf of Mexico. The inflow of moist tropical air in both winter and summer can cause frequent changes in climatic conditions. The average winter and summer tempratures are 82 degrees F and 46 degrees F respectively. The average annual rainfall is about 48 inches (Reference 2).

2.3 Principal Flood Problems

Located in the bottom lands of the upper West Fork of Cypress Bayou watershed, the Town of Plain Dealing experiences frequent flooding.

In April 1957, two floods occurred in Plain Dealing. On April 3, 146 acres of town were inundated to depths of up to 12 inches. Later in the month on April 27, 167 acres of urban area was flooded. The maximum depths of this storm ranged from 2.4 to 2.8 feet. The frequency of these storms are 2- and 10-years, respectively.

2.4 Flood Protection Measures

March 1961, marked the completion of the upper West Fork of Cypress Bayou watershed project. This project consists of a dam and reservoir located on each tributary upstream from the Town of Plain Dealing.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, and 500-year period (recurrence intervals), have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one percent chance of annual occurrence) in any 50 year period is about 40 percent (four in 10), and for any 90 year period, the risk increases to about 60 percent (six in 10). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

For the detailed study of West Fork of Little Cypress Bayou, East Fork of Little Cypress Bayou and Little Cypress Bayou downstream of their respective reservoirs, the hydrologic analysis was based on the USGS report "Floods in Louisiana, Magnitude and Frequency," (Reference 3) which is a regional method based on regression analysis. The method relates drainage area channel slope, and annual precipitation to the peak discharge empirical equations. The range of the recurrence intervals in the USGS equations extended to the 100-year frequency. Values for the 500-year frequency were extrapolated from a plot of values from the 10-, 50-, and 100-year discharges.

For the discharges from their respective reservoirs, a unit hydrograph for the runoff of the upstream drainage area was first developed. Next water-surface elevation-discharge relationships were developed for each reservoir from basic data contained in the SCS publication on the Cypress Bayou Watershed (Reference 2). Finally, a computer program was used to determine the hourly reservoir discharge by combining the effect of the runoff into the reservoir, the change in reservoir storage and elevation, and the corresponding discharges.

Finally, the flows from the reservoirs and the downstream segments were combined to form the peak discharges at each control point. Due to the time differential of the reservoir storage effect, it was necessary to distribute the downstream flows into hourly intervals prior to the combination. The maximum resultant discharge for each storm at each control point became the peak discharge to be utilized.

The peak discharge-drainage area relationships for the selected recurrence intervals are presented in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LITTLE CYPRESS BAYOU					
Downstream Corporate Limits	7.51	640	970	1,150	2,000
Upstream Corporate Limits	2.21	100	150	180	300
EAST FORK OF LITTLE CYPRESS BAYOU					
Confluence with Little Cypress Bayou	1.17	290	460	580	1,020
Dam Site	0.48	110	220	250	280
WEST FORK OF LITTLE CYPRESS BAYOU					
Confluence with Little Cypress Bayou	3.17	280	510	600	1,100
Upstream Corporate Limits	2.67	260	510	590	1,070

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail in the Town of Plain Dealing were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the flood sources.

Cross sections for the backwater analyses of the Little Cypress Bayou and its east and west forks were obtained from aerial photographs flown in November 1978, at a scale of 1.0 inch equals 100 feet. The below-water sections were obtained by field measurement. All bridges, dams, and culverts were field checked to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 2).

Channel roughness factors (Manning's "n") used in the hydraulic computatations, were chosen by engineering judgement and based on field observations of the streams and flood plain areas. Roughness values for the main channel of the streams range from 0.03 to 0.06 with a modal value of 0.04. Values for the overbanks varied from 0.03 to 0.30 depending on the amount of vegetation and structures.

Water-surface elevations of floods of the selected recurrence intervals were computed through use of the COE HEC-2 step-backwater computer program (Reference 4). Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected

recurrence intervals. Starting water-surface elevations for the Little Cypress Bayou were calculated using slope-area method on cross sections downstream of the study area. Starting water-surface elevations for the East and West Forks of Little Cypress Bayou correspond to coincident resultant elevations for the study storm on Little Cypress Bayou. All elevations are referenced from NGVD, formerly referred to as Sea Level Datum of 1929; elevation reference marks used in this study are shown and described on the maps.

Peak discharges in the preceding section were modified by cross-over flows from the West Fork to Little Cypress Bayou for the 50-, 100-, and 500-year flows along Mary Lee Avenue.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FIA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100- and the 500-year floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps at a scale of 1" = 100' with a contour interval of 2 feet. In cases where the 100- and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 2). Small areas within the flood boundaries may lie above the flood elevations, and therefore, may not be subject to flooding. Owing to limitations of the map scale and/or lack of detailed topographic data, such areas are not shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood

plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards of the FIA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are presented to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodways presented in this study were computed on the basis of equal conveyance reduction from each side of the flood plain. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was computed (Table 2).

As shown on the Flood Boundary and Floodway Map (Exhibit 2), the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
Little Cypress Bayou								
A	280	56	204	5.5	256.5	256.5	256.8	0.3
B	1,080	77	377	3.0	258.7	258.7	259.2	0.5
C	1,400	35	202	4.5	259.2	259.2	259.7	0.5
D	1,810	42	175	5.2	260.9	260.9	261.5	0.6
E	2,750	42	223	4.9	262.4	262.4	262.6	0.2
F	3,020	26	135	3.9	262.6	262.6	262.9	0.3
G	3,360	27	115	4.5	263.4	263.4	263.5	0.1
H	3,670	50	161	3.2	263.8	263.8	264.0	0.2
I	5,200	36	86	5.1	265.9	265.9	265.9	0.0
J	5,920	21	63	5.0	269.1	269.1	269.7	0.6
K	6,190	159	38	7.1	271.8	271.8	271.9	0.1
L	7,440	20	55	4.8	274.5	274.5	274.5	0.0
West Fork of Little Cypress Bayou								
A	370	30	138	3.3	262.8	262.8	263.2	0.4
B	970	24	87	5.2	263.6	263.6	263.9	0.3
C	1,400	33	126	3.6	264.9	264.9	265.2	0.3
D	2,410	38	135	4.4	266.8	266.8	266.9	0.1
E	2,960	20	97	6.1	268.8	268.8	268.8	0.0
F[2]	4,260	30	159	3.7	273.2	273.2	274.2	1.0

[1]Feet above corporate limits.
[2]Outside corporate limits

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA
(BOSSIER PARISH)

FLOODWAY DATA

LITTLE CYPRESS BAYOU-WEST FORK OF LITTLE CYPRESS BAYOU

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
East Fork of Little Cypress Bayou								
A	900	29	95	4.7	259.8	259.8	260.1	0.3
B	1,230	27	106	4.2	261.0	261.0	261.3	0.3
C	1,540	32	101	4.4	262.0	262.0	262.2	0.2
D	1,970	30	139	2.5	264.1	264.1	264.2	0.1
E	2,240	121	230	1.5	264.8	264.8	264.9	0.1
F	2,540	100	183	1.8	264.9	264.9	265.3	0.4
G	2,800	131	251	1.3	265.4	265.4	266.4	1.0
H	3,780	35	104	2.8	269.2	269.2	269.5	0.3

[1]Feet above mouth

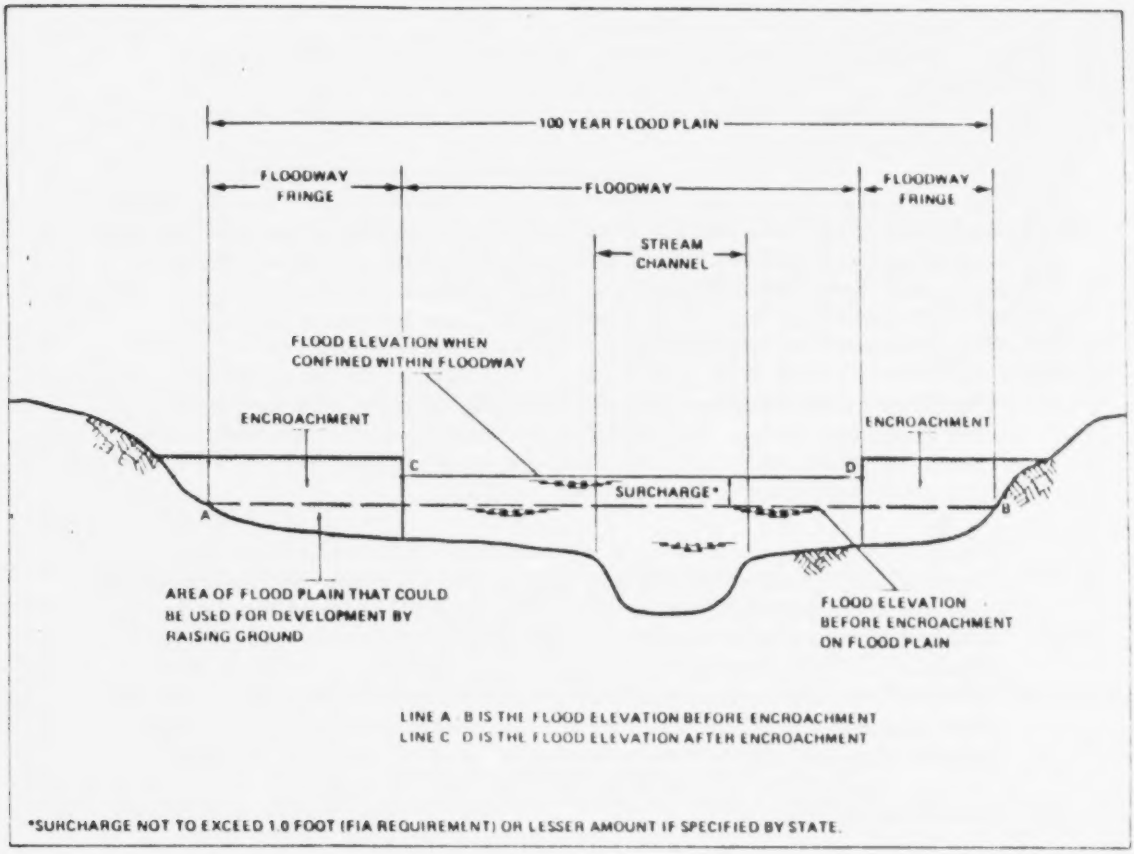
TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA
(BOSSIER PARISH)

FLOODWAY DATA

EAST FORK OF LITTLE CYPRESS BAYOU


100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE A B IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE C D IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE NOT TO EXCEED 1.0 FOOT (FIA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE.

FLOODWAY SCHEMATIC Figure 2

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FIA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for each significant flooding source affecting the Town of Plain Dealing.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

Average Difference Between 10- and 100-Year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot

Seven reaches were identified to meet the above criteria for the flooding sources of the Town of Plain Dealing. The locations of the reaches are shown on the Flood Profiles (Exhibit 1), and summarized in the Flood Insurance Zone Data Table.

5.2 Flood Hazard Factors (FHFs)

The Flood Hazard Factor is used to correlate flood information with insurance rate tables. Correlations between property damages from floods and their assigned FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest one-half foot, and shown as a three-digit code. For example, if the difference between the water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year flood water-surface elevations is greater than 10.0 feet, the accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the Town of Plain Dealing was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations.

Zones A2, A3, A4:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHFs.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; or areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.

Zone C: Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevation for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Town of Plain Dealing is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FIA.

6.0 OTHER STUDIES

There have been no other Flood Insurance Studies or similar studies conducted for the Town of Plain Dealing. The SCS design report (Reference 2) contained flood information relating to the shorter return interval storms (2 to 15 years).

The data presented here is authoritative for the purposes of the Flood Insruance program.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the Insurance and Mitigation Division, Federal Emergency Management Agency, Federal Center, Denton, Texas 76201.

8.0 BIBLIOGRAPHY AND REFERENCES

1. U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population, Number of Inhabitants, Louisiana, Washington, D.C., 1971.

2. U.S. Department of Agriculture, Soil Conservation Service, Upper West Fork of Cypress Bayou Watershed, Revised Work Plan, Bossier Parish, Louisiana, Fort Worth, Texas, 1959.

3. Braxtel, L. Neely, Jr., U.S. Geological Survey, Floods in Louisiana, Magnitude and Frequency, 3rd Edition, Louisiana Department of Highways, Baton Rouge, Louisiana, 1976.

4. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Computer Program 723-X6-L202-A HEC-2 Water-Surface Profiles, Davis, California, December 1968, with updates.

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3]
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Little Cypress Bayou							
Reach 1	0001	-1.25	-0.30	+0.80	015	A3	Varies
Reach 2	0001	-2.20	-0.60	+2.00	020	A4	Varies
Reach 3	0001	-1.50	-0.30	+1.50	015	A3	Varies
West Fork of Little Cypress Bayou							
Reach 1	0001	-1.70	-0.40	+1.60	015	A3	Varies
East Fork of Little Cypress Bayou							
Reach 1	0001	-1.40	-0.40	+0.90	015	A3	Varies
Reach 2	0001	-2.00	-0.80	+1.20	020	A4	Varies
Reach 3	0001	-1.10	-0.10	+0.90	010	A2	Varies

[1]FLOOD INSURANCE RATE MAP PANEL
[2]WEIGHTED AVERAGE
[3]ROUNDED TO NEAREST FOOT-SEE MAP

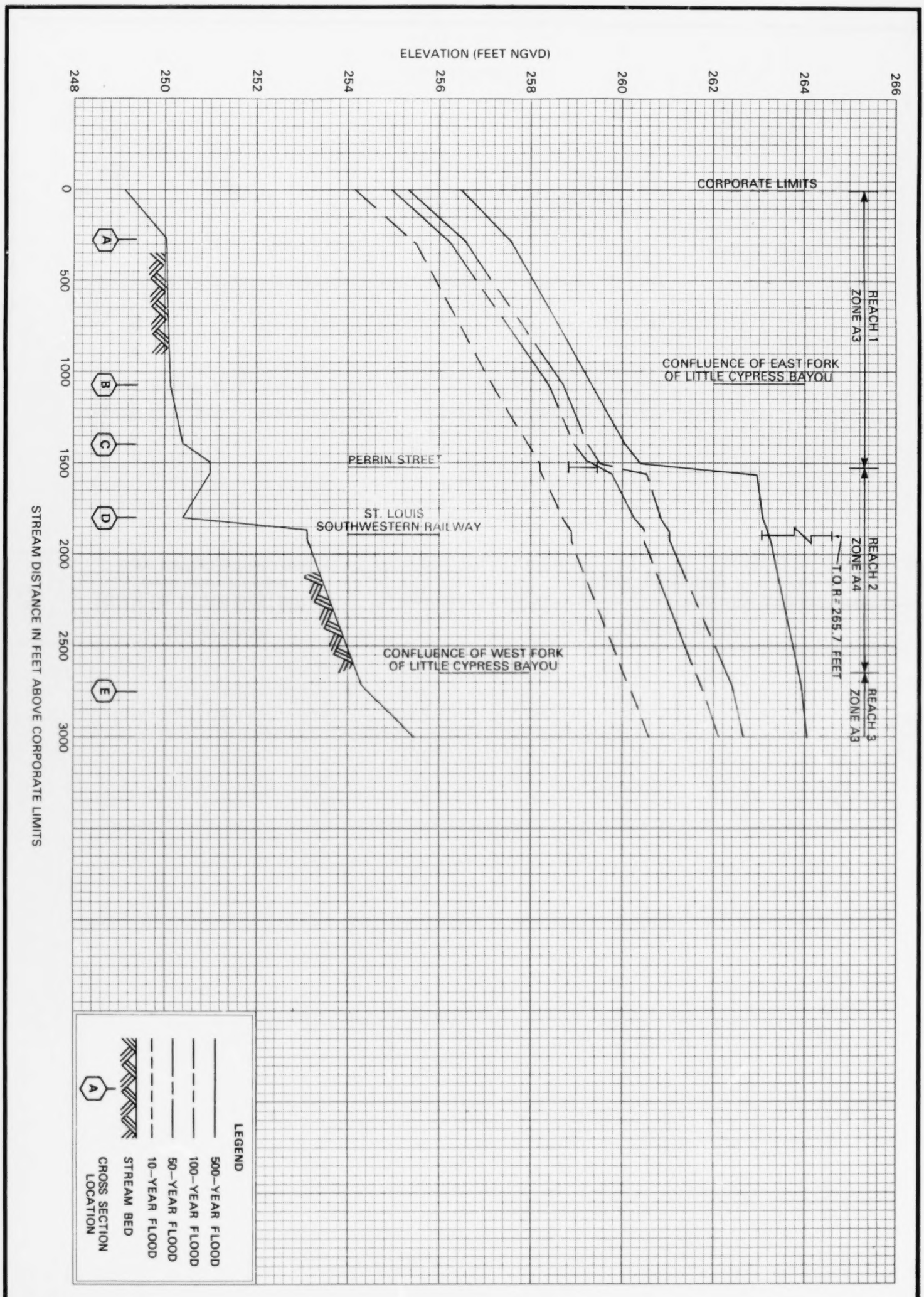
TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA
(BOSSIER PARISH)

FLOOD INSURANCE ZONE DATA

LITTLE CYPRESS BAYOU - WEST FORK OF LITTLE CYPRESS BAYOU - EAST FORK OF LITTLE CYPRESS BAYOU



01P

FEDERAL EMERGENCY MANAGEMENT AGENCY

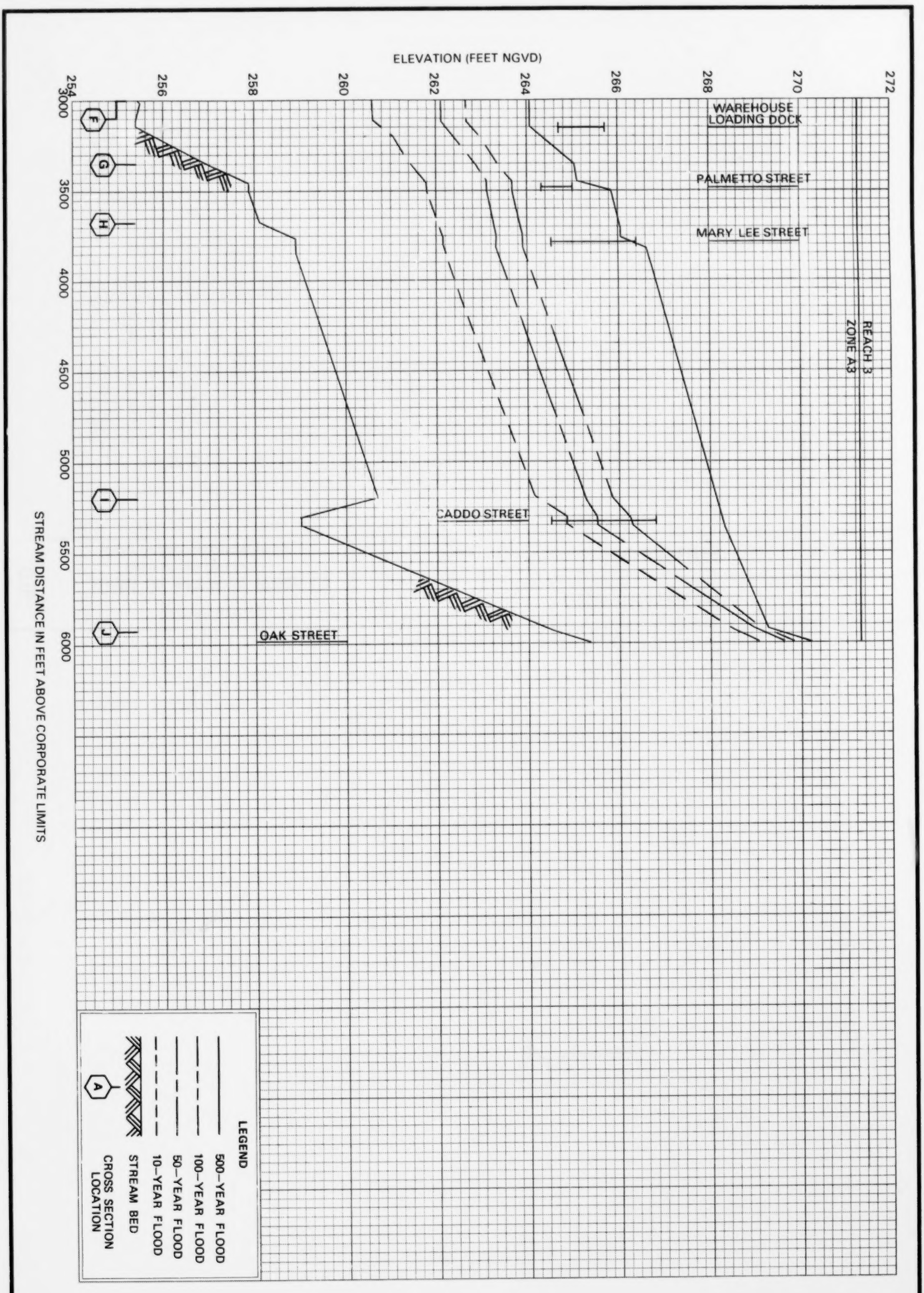
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA

(BOSSIER PARISH)

FLOOD PROFILES

LITTLE CYPRESS BAYOU



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FEDERAL EMERGENCY MANAGEMENT AGENCY

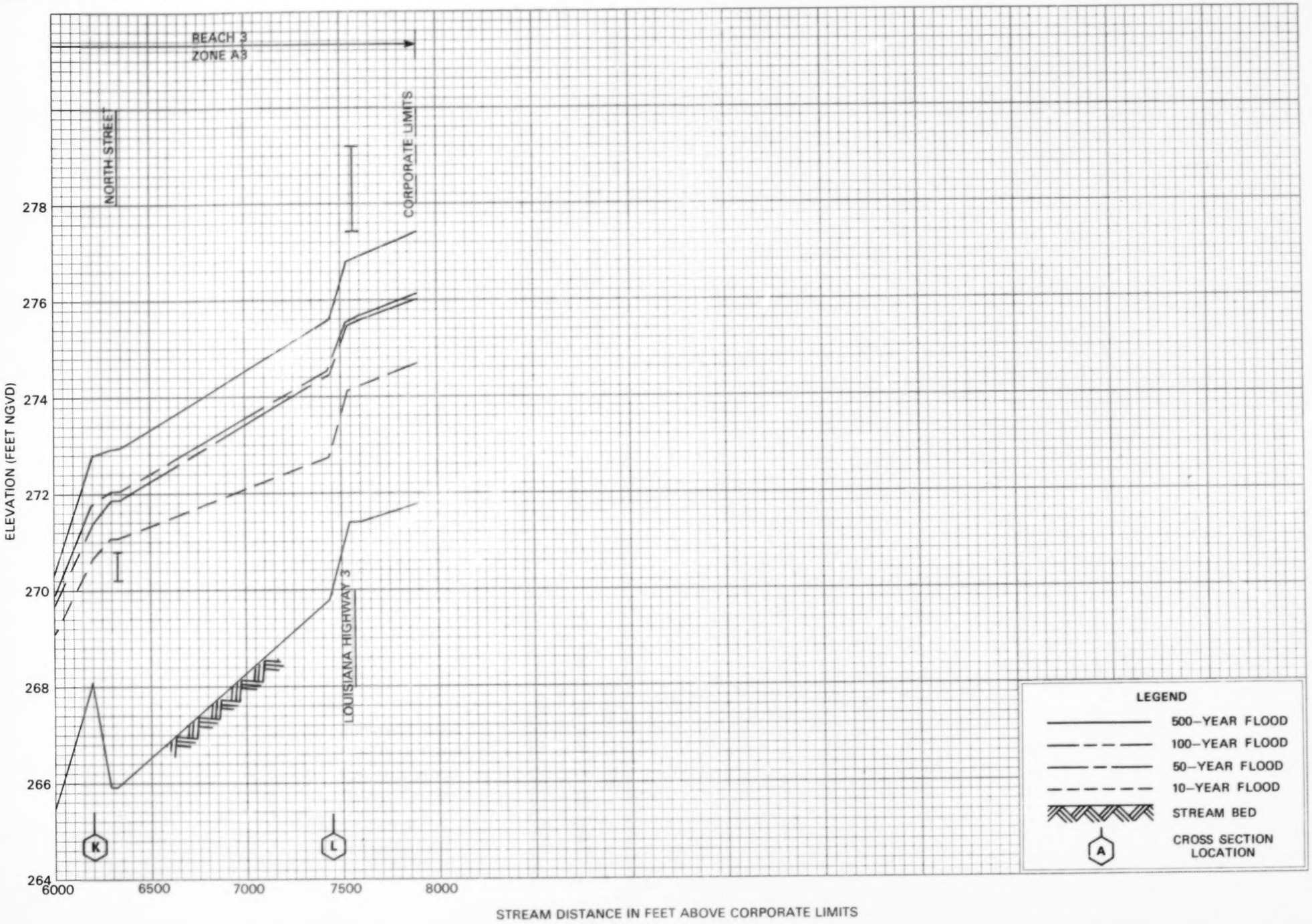
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA

(BOSSIER PARISH)

FLOOD PROFILES

LITTLE CYPRESS BAYOU



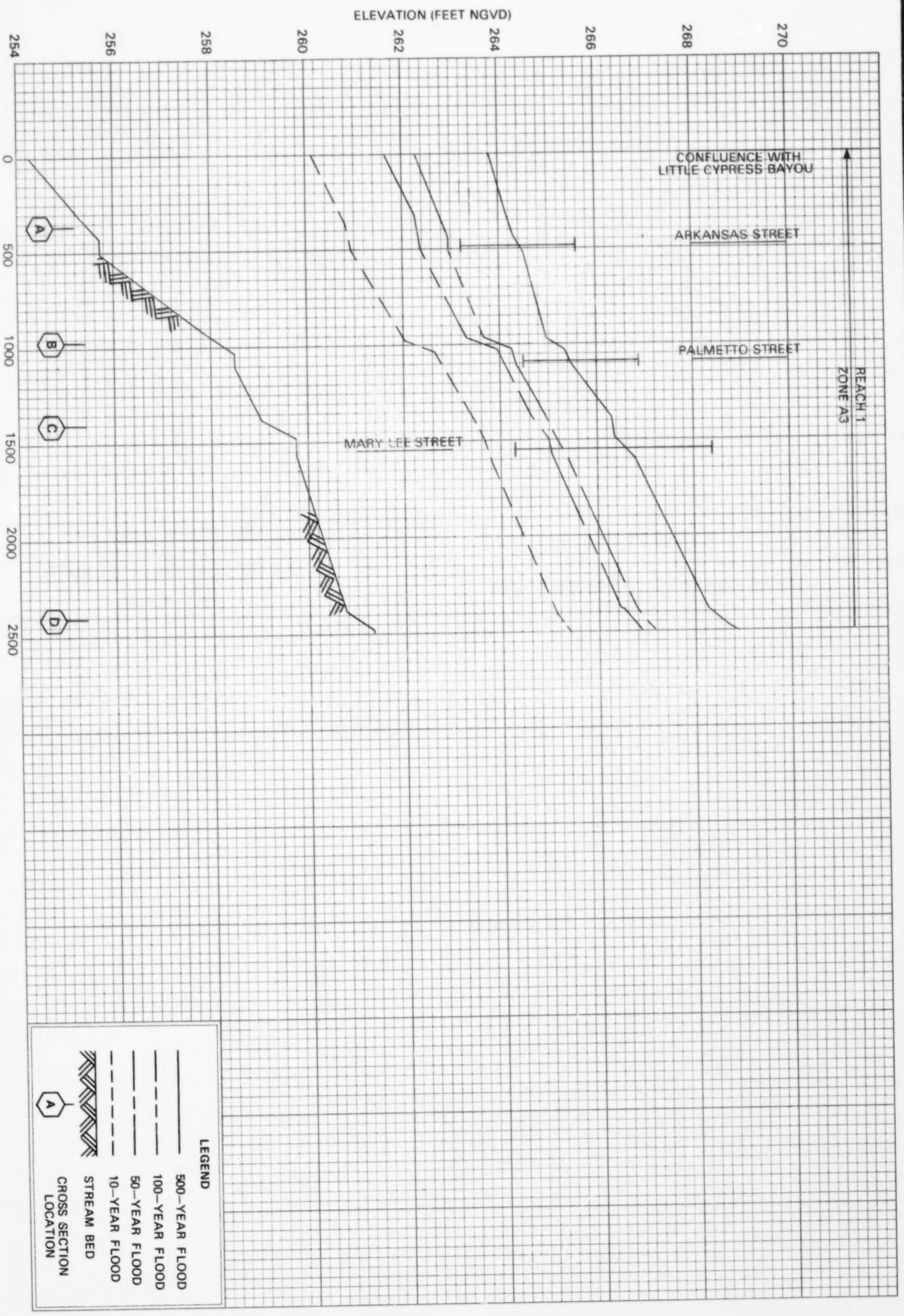
FLOOD PROFILES

LITTLE CYPRESS BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA
(BOSSIER PARISH)

03P



04P

FEDERAL EMERGENCY MANAGEMENT AGENCY

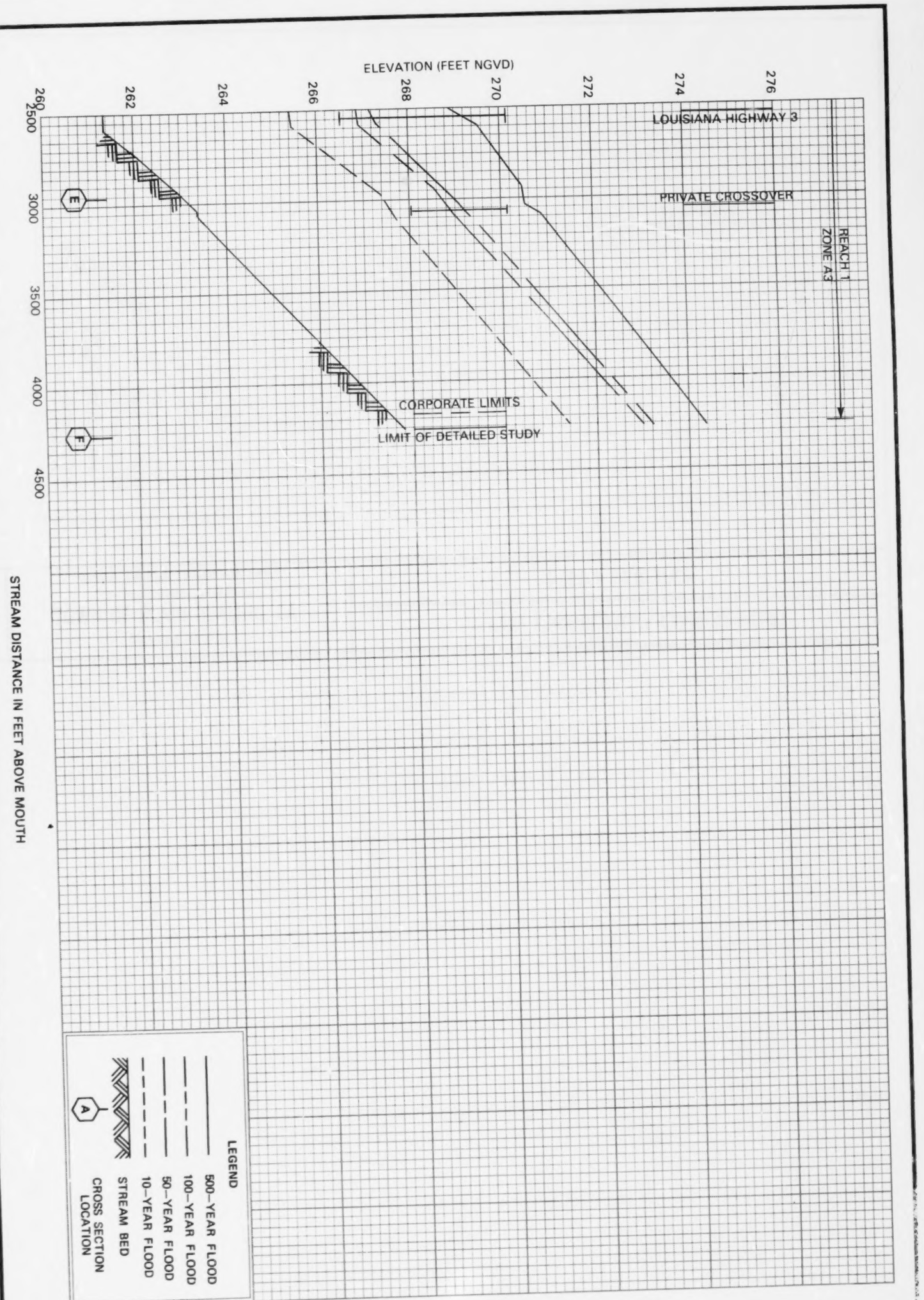
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA

(BOSSIER PARISH)

FLOOD PROFILES

WEST FORK OF LITTLE CYPRESS BAYOU



FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

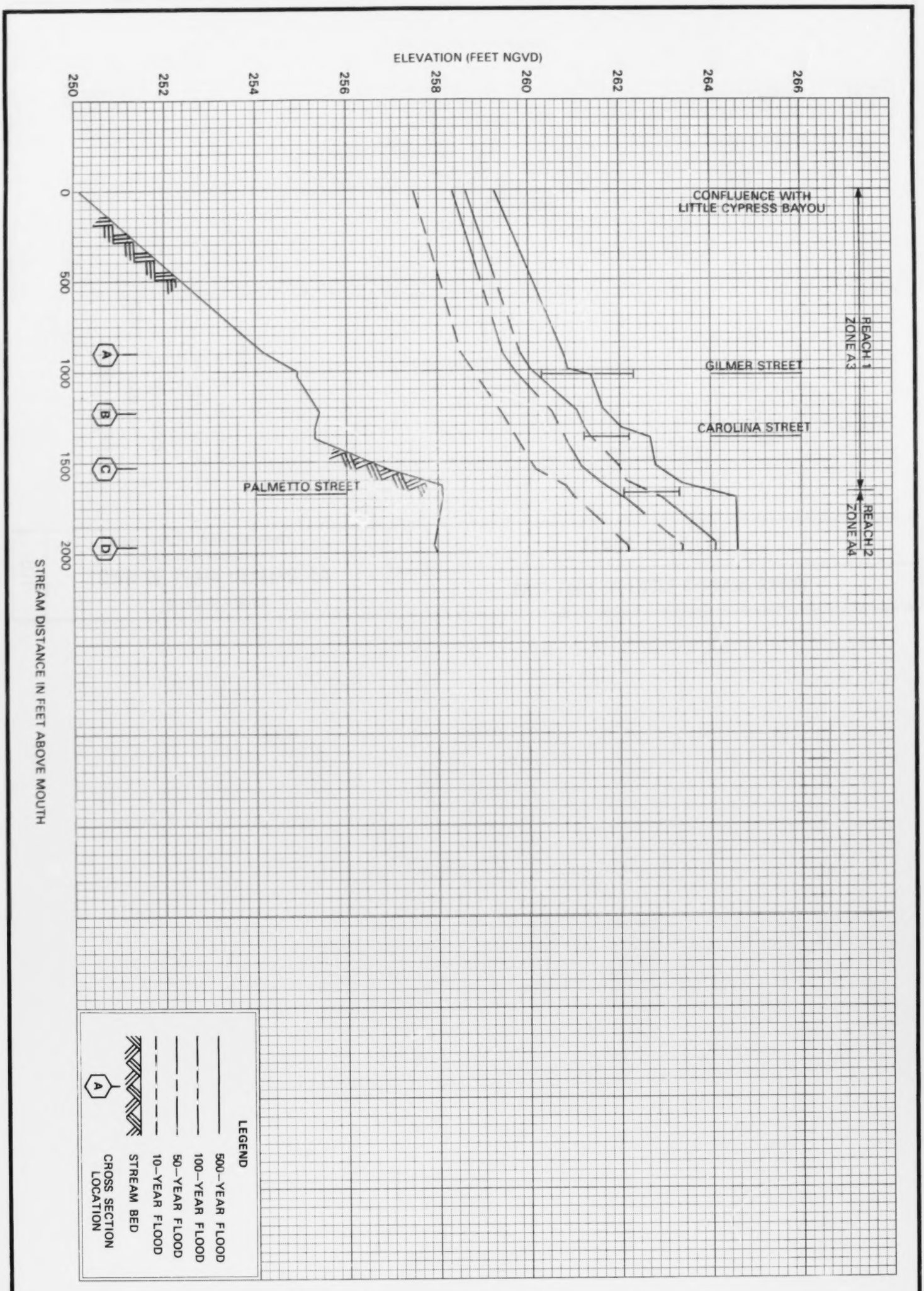
TOWN OF PLAIN DEALING, LA

(BOSSIER PARISH)

05P

FLOOD PROFILES

WEST FORK OF LITTLE CYPRESS BAYOU



06P

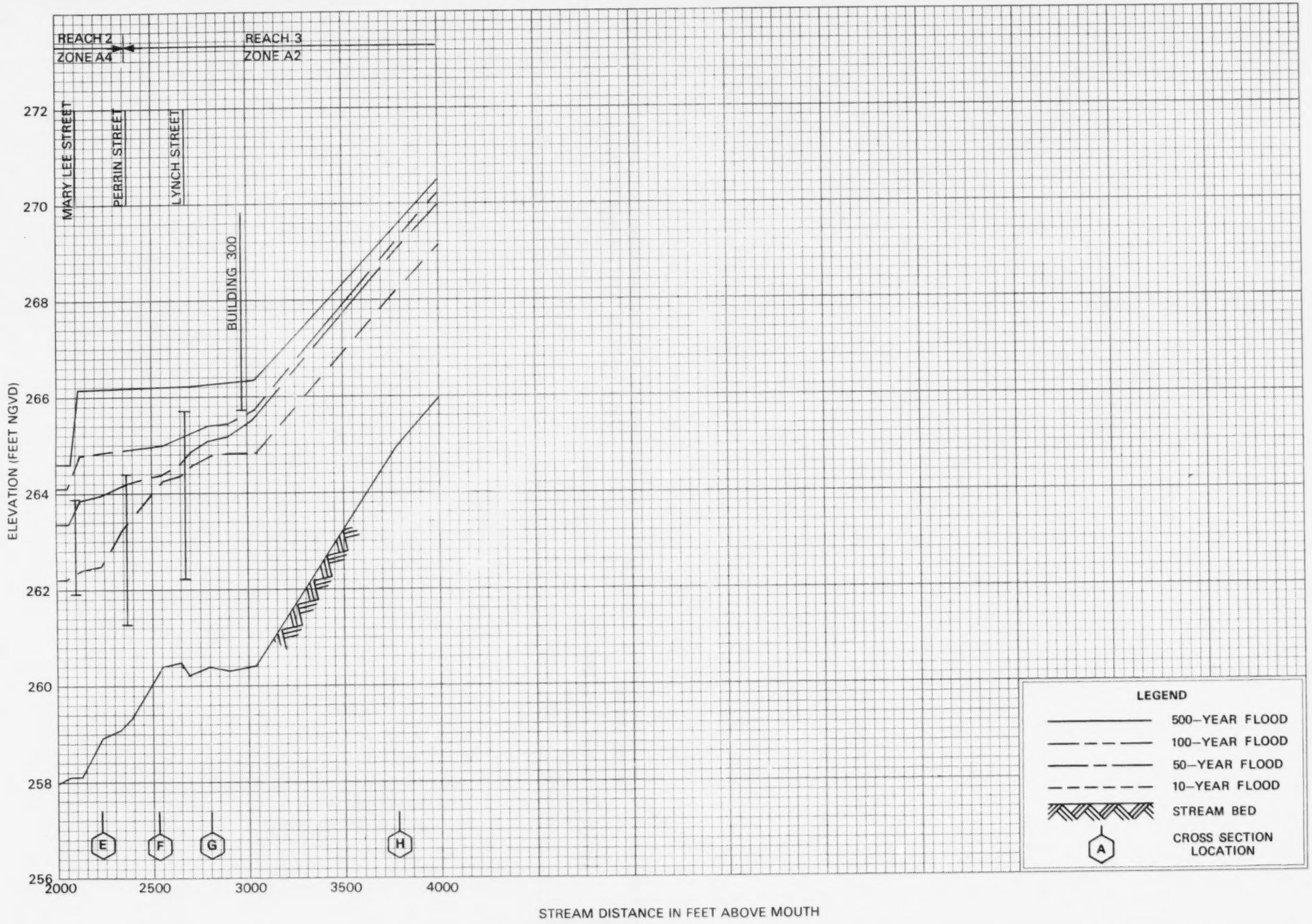
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA

(BOSSIER PARISH)

FLOOD PROFILES

EAST FORK OF LITTLE CYPRESS BAYOU



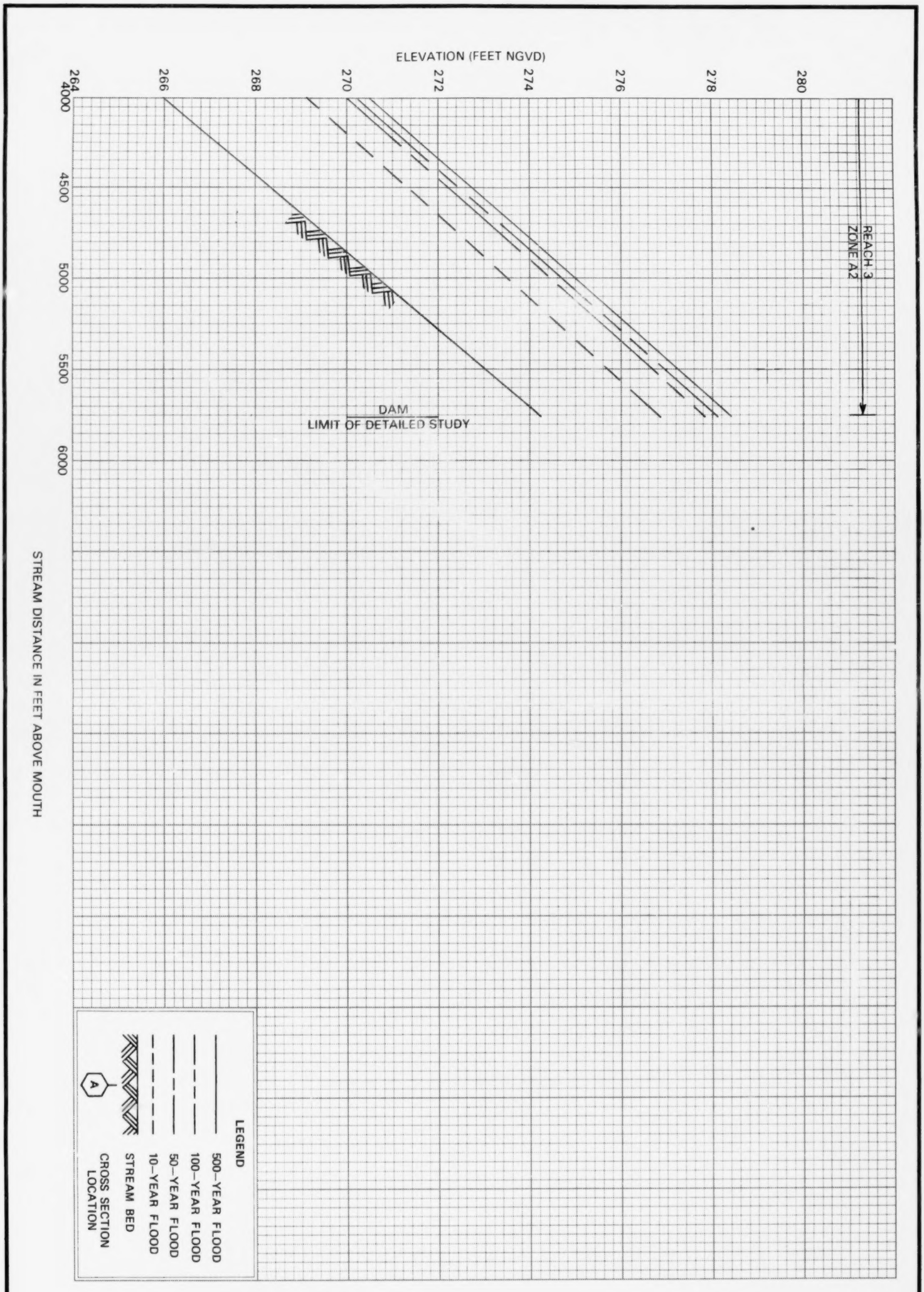
FLOOD PROFILES

EAST FORK OF LITTLE CYPRESS BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

TOWN OF PLAIN DEALING, LA
(BOSSIER PARISH)

07P



08P	FEDERAL EMERGENCY MANAGEMENT AGENCY Federal Insurance Administration **TOWN OF PLAIN DEALING, LA** (BOSSIER PARISH)	**FLOOD PROFILES** **EAST FORK OF LITTLE CYPRESS BAYOU**